Department of Energy
Washington, DC 20585

December 19, 2000

Mr. Joseph J. Buggy
President
Westinghouse Savannah River Company
Aiken, South Carolina 29808

Dear Mr. Buggy:

This letter responds to your March 28, 2000, request for exemption from certain provisions contained in Title 10 of the Code of Federal Regulations, Part 835 (10 CFR 835), "Occupational Radiation Protection." Specifically, this response concerns your request for exemption from provisions contained in appendix D to 10 CFR 835 as they apply to removable surface contamination values for tritium and tritiated compounds. The purpose of the exemption request was to obtain relief from requirements associated with defining, posting, using protective clothing, and controlling and monitoring areas with tritium contamination levels in excess of appendix D values.

The Office of Safety and Health conducted a technical review of the exemption request (enclosed). Discussions concerning the specifics of the exemption request were held with Department of Energy (DOE) and contractor personnel. Based on our review of the materials that were provided, the DOE is not granting an exemption from the 10 CFR 835, appendix D, values as they apply to removable surface contamination values for tritium and tritiated compounds. A significant element of the exemption request was to allow the site to modify their use of protective clothing in specified areas. DOE's requirements and guidance already allow sites to determine the appropriate level of protective clothing.

The enclosed technical review provides additional information concerning the exemption decision.

The DOE Office of Environmental Management and the Office of the Deputy Administrator for Defense Programs (National Nuclear Security Administration) concur with this exemption decision.

Sincerely,

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

2 Enclosures

cc w/enclosures:
Greg Rudy, Savannah River
Operations Office

TECHNICAL REVIEW

Westinghouse Savannah River Company Exemption Request for
Title 10 of the Code of Federal Regulations, Part 835 (10 CFR 835)

The Westinghouse Savannah River Company (WSRC) requests exemption from certain requirements of 10 CFR 835, "Occupational Radiation Protection." WSRC requests relief from certain requirements from provisions contained in appendix D to 10 CFR 835 as they apply to removable surface contamination values for tritium and tritiated compounds. The purpose of the exemption request was to obtain relief from requirements associated with defining, posting, using protective clothing, and controlling and monitoring areas with tritium contamination levels in excess of appendix D values. The Office of Worker Protection Policy and Programs (EH-52) does not concur with this request for exemption.

Discussion

Background

On November 4, 1998, the Department of Energy (DOE) published an amendment to "Occupational Radiation Protection," 10 CFR 835, as a final rule in the Federal Register. The amended 10 CFR 835 includes in Appendix D, "Surface Contamination Values," a value for tritium and tritiated compounds removable surface contamination. This value is 10,000 disintegrations per minute per 100 square centimeters ($dpm/100cm^2$). A footnote to appendix D discusses that a limit for total (fixed plus removable) surface contamination is not applicable for tritium.

DOE prepared an Environmental Assessment (EA) supporting the amendment to 10 CFR 835. The availability of the EA in DOE's Freedom of Information Reading Room was published in the Federal Register on November 4, 1998, with the amended final rule. Appendix D to the EA, "Calculations for Tritium Dose Estimates," discusses the potential dose from both skin contamination and inhalation exposures to items contaminated at the 10 CFR 835, appendix D, value (10,000 $dpm/100\ cm^2$). The resulting dose from these scenarios is a very small fraction of the allowable dose to either general employees or members of the public.

WSRC originally submitted their request for exemption on July 17, 1998. The DOE Savannah River Operations Office (SR) forwarded the exemption request to the Assistant Secretary, Office of Environment, Safety and Health (EH-1), on December 28, 1998, recommending approval. EH-52 staff conducted a technical review of the exemption request, including a site visit on March 16 and 17, 1999. During the site visit, applicable areas of the facility were toured and discussions concerning the specifics of the exemption request were held with DOE and contractor personnel. At that time, WSRC was considering submitting a similar request for the limits specified in DOE Order (O) 5400.5, "Radiation Protection of the Public and the Environment." Where 10 CFR 835 covers release of material to controlled areas, DOE O 5400.5 applies to the unrestricted release of material. WSRC agreed to consider submitting their 10 CFR 835 exemption request concurrently with a similar request for the surface contamination guidelines specified in DOE O 5400.5.

On November 12, 1999, EH-1 sent an interim response to the exemption request stating that a final response would be issued pending the site resubmitting their request concurrent with a request for the limits specified in DOE O 5400.5.

Subsequent evaluation by WSRC resulted in a determination not to submit a similar request for the guidelines specified in DOE O 5400.5 at this time. On March 28, 2000, WSRC resubmitted their request for exemption from the 10 CFR 835 requirement.

Request

WSRC specifically requests relief from the surface contamination values in 10 CFR 835, appendix D, as they apply to removable tritium surface contamination. These values are used for defining contamination and high contamination areas, determining the need for radioactive contamination control, monitoring, using protective clothing, and posting of contamination and high contamination areas.

WSRC is requesting the exemption to allow control of tritium contaminated areas and material at the Savannah River Site to be based upon a removable level of 100,000 dpm/100 cm^2 rather than the value of 10,000 dpm/100 cm^2 that was promulgated in the November 4, 1998, amendment to 10 CFR 835. In their July 17, 1998, exemption request, WSRC states that the exemption request, if approved, involves special circumstances that the exemption would result in benefit to human health and safety that compensates for any detriment that may result from granting the exemption (10 CFR 820.62(d)(4)).

On July 13, 2000, SR forwarded the exemption request to EH-1 with their recommendation for approval of the request.

Requirements from which Exemption is Sought

Appendix D to Part 835--SURFACE CONTAMINATION VALUES

The data presented in appendix D are to be used in identifying and posting contamination and high contamination areas in accordance with § 835.603(e) and (f) and identifying the need for surface contamination monitoring and control in accordance with § 835.1101 and 1102.

Surface Contamination Values in dpm/100 cm^2

Radionuclide	Removable	Total (Fixed + Removable)
Tritium and tritiated compounds[6]	10,000	N/A

Analysis

In support of their request for exemption, WSRC notes that in November 1999, the American National Standards Institute (ANSI) approved standard ANSI/Health Physics Society (HPS) N13.12-1999, "Surface and Volume Radioactivity Standards for Clearance."

Although the scope of ANSI/HPS N13.12 states that it applies to the clearance of materials and equipment from controlled areas, use of the values and methodology in this standard could be used in support of an exemption request for release of material to controlled areas such as that submitted by WSRC.

The exemption request states that the standard is a national consensus standard that establishes a recommended unconditional clearance level for tritium (i.e., 600,000 dpm/100 cm^2) that is significantly higher than the level requested (i.e., 100,000 dpm/100 cm^2). EH-52 agrees that the requested value is lower than the ANSI/HPS N13.12 value. However, the 600,000 dpm/100 cm^2 level referenced for tritium in the standard is for total surface contamination, not just for removable. The standard does not specify levels for removable surface contamination. Appendix D of 10 CFR 835 only specifies a removable surface contamination value for tritium and tritiated compounds. Footnote 6 to the appendix states that tritium contamination may diffuse into the volume or matrix of materials, and evaluation of surface contamination shall consider the extent to which such contamination may migrate to the surface. Once this contamination migrates to the surface, it may be removable. Accordingly, 10 CFR 835, appendix D, does not specify a value for total surface contamination for tritium and tritiated compounds. For most nuclides listed in appendix D of 10 CFR 835, the total surface contamination values are a factor of 5 times greater than the removable values. If the same approach were applied to tritium and tritiated compounds, the requested unconditional clearance level of 100,000 dpm/100 cm^2 would be slightly more restrictive than the value for removeable tritium contamination derived from ANSI/HPS N13.12.

In support of the exemption request, WSRC states that approval of the exemption request will allow improved work efficiencies and a reduction in costs (estimated to be on the order of $250,000 per year according to the December 28, 1998, SR memorandum) due to excessive use of protective clothing and generation of radioactive waste. As stated previously, WSRC had considered submitting the 10 CFR 835 exemption request concurrent with a request to increase the unconditional release limits found in DOE O 5400.5 to the same value. Part of this consideration was that contamination control program implementation would be much easier if the limits given in an exemption decision to 10 CFR 835 (for releases to controlled areas) were consistent with allowed limits authorized under DOE O 5400.5 (for unrestricted releases). The reduction in costs would also be much easier to demonstrate if consistent release criteria were implemented.

Ultimately, WSRC decided to pursue the request for exemption to the 10 CFR 835, appendix D, tritium values without an accompanying request to increase the unconditional release limits in DOE O 5400.5 to the same value. Therefore, if granted, the exemption decision will allow the release of material from radiological areas to controlled areas using a release criteria for tritium and tritiated compounds that is greater than that allowed for unrestricted releases in DOE O 5400.5. The exemption request does not specify how the site will identify and control the unrestricted release of these materials from the site.

As part of the review process, EH-52 analyzed the impact on granting the exemption request on compliance with provisions in 10 CFR 835 affected by the change in appendix D values. The table below summarizes the major impacts:

Provision	Effect of Granting Exemption
835.2 contamination area definition	areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less would not be defined as contamination areas
835.2 high contamination area definition	areas with tritium and tritiated compounds removable contamination levels of 1,000,000 dpm/100cm^2 or less would not be defined as high contamination areas
835.2 radiological area definition	areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less would not be defined as radiological areas
835.501(a) personnel entry control for radiological areas	personnel entry control would not be required for areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less
835.501(d) written authorizations for radiological areas	written authorizations would not be required for entry and work in areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less
835.603 posting of contamination and high contamination areas	posting criteria for areas with tritium and tritiated compounds would be revised to reflect the new definitions
835.901(b) training prior to unescorted access to radiological areas	a lower level of training would be required for unescorted access to areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less
835.1101(a) release to controlled area	material and equipment could be released to controlled areas with removable contamination levels of tritium and tritiated compounds of up to 100,000 dpm/100cm^2
835.1102(a) prevent transfer of removable contamination outside radiological areas	appropriate controls would not need to be maintained and verified to prevent transfer of removable contamination for areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2

835.1102(b) control of contamination areas	area controls would not be needed for areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less
835.1102(d) monitoring upon exiting contamination areas	contamination monitoring would not be required for individuals exiting areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less
835.1102(e) use of protective clothing for entry into contamination and high contamination areas	protective clothing would not be needed for areas with tritium and tritiated compounds removable contamination levels of 100,000 dpm/100cm^2 or less

The only provision listed above and discussed in the exemption request that would significantly improve work efficiencies while reducing costs due to excessive use of protective clothing and generation of radioactive waste is the 10 CFR 835.1102(e) requirement for use of protective clothing for entry into contamination and high contamination areas. Per discussions with site DOE and WSRC personnel, a significant element of the basis for requesting the exemption would be to allow workers to access certain areas where the tritium removable contamination levels are 100,000 dpm/100cm^2 or less without requiring the workers to don a full set of protective clothing. Alternately, the WSRC would require individuals entering these areas to perform defined tasks with specified components while only wearing a single pair of gloves.

DOE provides guidance on typical contamination control practices in appendix 3C of DOE-STD-1098-99, "Radiological Control." DOE-STD-1098-99 recommends a full set of protective clothing be worn in areas with removable contamination levels exceeding the appendix D values. The recommended full set of protective clothing consists of coveralls, cotton glove liners, gloves, shoe covers, rubber overshoes, and hood. In addition, article 347 of DOE STD 1098-99 specifies a reduced set of protective clothing (laboratory coats, gloves, and possibly, shoe covers) for benchtop work, laboratory fume hoods, sample stations, glovebags, and gloveboxes.

DOE-STD-1098-99 is a guidance document. Its recommendations for use of protective clothing are only guidance. It does not specify requirements. Sites do not need to adhere to the guidance unless the site is contractually obligated to follow the standard. Additional guidance for contamination control is contained in DOE Guide (G) 441.1-9, "Radioactive Contamination Control Guide." Section 4.3.2.1 of DOE G 441.1-9 states that "The type of protective clothing required should be prescribed based upon considerations of contamination levels, chemical and physical form of the contaminant, activities to be performed, and area accessibility."

DOE's requirements and guidance allow sites to determine the appropriate level of protective clothing. Consistent with DOE Guide 441.1-9, the level of protective clothing should be consistent with the radiological hazard.

Conclusions

10 CFR 820.62(d) requires that exemption requests meet at least one of six special circumstances in order to be approved. It is EH-52's position that WSRC has not successfully demonstrated that this exemption request meets any special circumstance. Accordingly, the exemption request should not be granted because the exemption request does not fulfill any special circumstance.

The largest benefit to the site for granting the exemption request would be a reduction in the use of full sets of protective clothing in specified areas with tritium and tritiated compounds removable contamination. As discussed above, DOE's requirements and guidance already allow sites to determine the appropriate level of protective clothing.

In addition, if granted, the exemption decision will allow the release of material from radiological areas to controlled areas using a release criteria for tritium and tritiated compounds that is greater than that allowed for unrestricted releases in DOE O 5400.5. The exemption request does not specify how the site will identify and control the unrestricted release of these materials from the site. The exemption request also does not discuss the impact of additional controls needed to ensure compliance with DOE O 5400.5 on the resources estimated to be saved by granting the exemption request.

Concurrence

Consistent with the technical position provided above, EH-52 does not concur with the WSRC exemption request.

Duration of Exemption

Not Applicable

EXEMPTION DECISION

Pursuant to title 10 of the Code of Federal Regulations, part 820.61 (10 CFR 820.61), the Assistant Secretary for Environment, Safety and Health (EH-1) is authorized to exercise authority on behalf of the Department of Energy (DOE) with respect to requests for exemptions from nuclear safety rules relating to radiological protection of workers, the public, and the environment.

On March 28, 2000, the Westinghouse Savannah River Company (WSRC) filed a request with the Department for permanent exemption from certain requirements of Title 10, Code of Federal Regulations, Part 835 (10 CFR 835), "Occupational Radiation Protection." The request was a resubmittal of a July 17, 1998, request that had been held in abeyance pending anticipated resolution of unrestricted release criteria issues.

In particular, WSRC requested relief from certain values specified in 10 CFR 835, appendix D--specifically, the values which apply to removable tritium and tritiated compounds surface contamination. These values are used for defining contamination and high contamination areas and determining the need for radioactive contamination control, monitoring, using protective clothing, and posting of contamination and high contamination areas.

The request states that the exemption is not prohibited by law; will not present an undue risk to the public health and safety, the environment, or facility workers; and is consistent with the safe operation of a DOE nuclear facility.

Under the terms set forth in 10 CFR 820.61, I am the Secretarial Officer granted review and approval authority for exemption requests made with respect to 10 CFR 835. Based on a review of the supporting documentation, I find that the request set forth above has not been justified for relief from appendix D of 10 CFR 835. Specifically, I find that the exemption criteria of 10 CFR 820.62 have not been met. I have determined that the exemption does not meet any of the special circumstances, described in the technical position prepared by the Office of Worker Protection Policy and Programs, to constitute a sufficient basis upon which to grant this exemption.

On the basis of the foregoing, I hereby disapprove WSRC's request for exemption from the stated section of 10 CFR 835.

Pursuant to 10 CFR 820.66, WSRC has 15 days from the date of the filing of this decision to file a Request to Review with the Secretary. The Request to Review shall state, specifically, the respects in which the exemption determination is claimed to be erroneous, the grounds of the request, and the relief requested. If no Request to Review is submitted, the exemption decision becomes a final order 15 days after it is filed.

December 19, 2000
Date

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health